

ATTACHMENT D

Engineering Evaluation for Authority to Construct

**AIR QUALITY
MANAGEMENT DISTRICT****AUTHORITY TO CONSTRUCT EVALUATION**

APPLICATION NO.:	20519 & 20520
DATE:	09-12-2007
EVALUATED BY:	Carla J. Prasetyo Jo

FACILITY NAME: Grafil Inc.**LOCATION OF EQUIPMENT:** 5900 88th Street, Sacramento, CA 95828**PROPOSAL:** Obtain an Authority to Construct to modify the graphite fiber manufacturing process Line 31 (P/O 19643) and Line 32 (P/O 19644).**INTRODUCTION:**

Grafil Inc. is applying for an Authority to Construct/Permit to Operate for the modification of graphite fiber manufacturing process Line 31 (P/O 19643) and Line 32 (P/O 19644). Originally, the fugitive exhaust is routed through the 9.18 MMBtu Thermal Oxidizers on manufacturing lines 31 and 32 before the main stack to be thermally treated. However, continuously venting the fugitive exhaust to the thermal oxidizers is not physically feasible because it put a much greater load on the fugitive exhaust fans and also dramatically increases the natural gas consumption on the oxidizers. This result was found during the implementation of the ductwork.

For this modification, Grafil Inc. proposes to route the fugitive exhaust through the outdoor thermal oxidizers only during process upset events, including startups, to be in compliance with the current permit condition. The system has never been operating in a manner that fugitive emission is being continuously vented to the outside thermal oxidizer. There is no change in the pre-project and post-project emission, since Grafil Inc. has never implemented the potential emission reductions from continuous venting of the fugitive emission proposed in the previous modification.

EQUIPMENT DESCRIPTION:**A/C 20519 - Graphite Fiber Manufacturing Process Line 31 Consisting of:**

1. Four (4) Oxidation Ovens, Electrically-heated, 235 KW each, Vented to APC Afterburner #1 (P/O 11425)
2. Two (2) Oxidation Ovens^(A), Electrically-heated, 500 KW each, Vented to APC Afterburner #1 (P/O 11425)
3. Low Temperature Furnace, 252 KW^(B), Electrically-heated, Vented to APC Afterburner #2^(C) (P/O 15841)
4. High Temperature Furnace, 400 KW, Electrically-heated, Vented to APC Afterburner #2^(C) (P/O 15841)
5. High Temperature Furnace End-Cap Extraction Filter
6. Electrolyte Surface Treatment Bath, Vented to Atmosphere
7. Surface Treated Fiber Dryer
8. Size Bath
9. Sized Fiber Dryer
10. Sized Make-up Facility

11. Two (2) Low Temperature Furnace End-Cap hoods, Low Temperature Rodding Exhaust, Two (2) Rodding Point Hoods, Two (2) High Temperature End-Cap Hoods, Vented to Process Exhaust Fan
 12. Process Exhaust Fan, One (1) Primary and One (1) Standby, Vented to APC Afterburner #1 (P/O 11425)
 13. Continuous Emission Monitor, One (1) Primary and One (1) Standby, Interscan Continuous Hydrogen Cyanide (HCN) Monitor, Model No. LD28, Range: 0 – 100 ppm HCN, Located in Plant Exhaust Stack for Afterburner Exhaust and Plant Air Ducting (One HCN Monitor Serving Both Line 31 [P/O 20519] and Line 32 [A/C 20520])
- (A) Oxidation Ovens (2)
C. A. Litzler Company
Electrically-Heated
500 KW each
Maximum Temperature - 572°F
- (B) Low Temperature Furnace
Resistance Heater Rating – 252 KW
- (C) APC Afterburner #2
Zeeco, Inc.
Three-Stage Oxidation Process
Heat Input Rating – 2.4 MMBtu/hr

A/C 20520 - Graphite Fiber Manufacturing Process Line 32 Consisting of:

1. Four (4) Oxidation Ovens, Electrically-heated, 235 KW each, Vented to APC Afterburner #3 (P/O 11426)
 2. Two (2) Oxidation Ovens ^(A), Electrically-heated, 400 KW each, Vented to APC Afterburner #3 (P/O 11426)
 3. Low Temperature Furnace ^(B), 252 KW, Electrically-heated, Vented to APC Afterburner ^(C) #4 (P/O 18279)
 4. High Temperature Furnace, 400 KW, Electrically-heated, Vented to APC Afterburner ^(C) #4 (P/O 18279)
 5. High Temperature Furnace End-Cap Extraction Filter
 6. Electrolyte Surface Treatment Bath, Vented to Atmosphere
 7. Surface Treated Fiber Dryer
 8. Size Bath
 9. Sized Fiber Dryer
 10. Sized Make-up Facility
 11. Two (2) Low Temperature Furnace End-Cap Hoods, Low Temperature Furnace Rodding Exhaust, Two (2) Rodding Point Hoods, Two (2) High Temperature End-Cap Hoods, Vented to Process Exhaust Fan
 12. Process Exhaust Fan, One (1) Primary and One (1) Standby, Vented to APC Afterburner #3 (P/O 11426)
 13. Continuous Emission Monitor, One (1) Primary and One (1) Standby, Interscan Continuous Hydrogen Cyanide (HCN) Monitor, Model No. LD28, Range: 0 – 100 ppm HCN, Located in Plant Exhaust Stack for Afterburner Exhaust and Plant Air Ducting (One HCN Monitor Serving Both Line 31 [P/O 20519] and Line 32 [A/C 20520])
 14. Waste Heat Recovery Boiler, 2.4^(D) MMBtu/hr, Vented to APC Baghouse (P/O 19659)
- (A) Oxidation Ovens (2)
Despatch Industries
Electrically-Heated
400 KW each

Maximum Zone Temperature - 572°F

- (B) Low Temperature Furnace
Resistance Heater Rating – 252 KW
- (C) APC Incinerator #4 (A/C 18279)
Zeeco, Inc.
Three-Stage Oxidation Process
Heat Input Rating – 2.4 MMBtu/hr
- (D) Waste Heat Recovery Boiler
Estimated Rating – 2.4 MMBtu/hr based on APC Incinerator #4's rating

FLOW DIAGRAM: see permit folder.

CONTROL EQUIPMENT EVALUATION:

The manufacturing process line 31 includes two APC afterburners. The exhaust from the oxidation ovens and fugitive emissions generated during process upset events, including start up, is vented to incinerator #1 (identified in the schematic diagram as the outside thermal oxidizer, O/TO). The exhausts from the low temperature furnace and the high temperature furnace is vented to incinerator #2 (identified as inside thermal oxidizer, I/TO), followed by a baghouse.

The manufacturing process line 32 includes two APC incinerators. The exhaust from the oxidation ovens and fugitive emissions generated during process upset events, including start up, is vented to incinerator #3 (identified in the schematic diagram as the outside thermal oxidizer, O/TO). The exhausts from the low temperature furnace and the high temperature furnace is vented to incinerator #4 (identified as inside thermal oxidizer, I/TO), followed by a baghouse. Source tests, as a permit requirement, have been conducted and demonstrated compliance with the emissions limitation.

OPERATING SCHEDULE:

Assume 24 hours/day and 92 days/quarter.

EMISSIONS CALCULATIONS:

1. HISTORIC POTENTIAL TO EMIT:

Graphite fiber manufacturing process Line 31 (P/O 19492) and Line 32 (P/O 19493)

Pollutant	Process Lines 31 & 32 Combined		
	Historic Potential to Emit lb/hour (Based on 3-hour Average)		
	Main Stack	Fugitive Exhaust	Total
ROC	3.32	0.02	3.34
NO _x	5.74	N/A	5.74
SO _x combustion	0.014 ^(A)	N/A	5.994
SO _x process	5.98 ^(B)	N/A	
PM ₁₀	5.2	N/A	5.2
CO	21.71	N/A	21.71

- (A) SO_x combustion is SO_x emissions generated from the combustion product of the four afterburners. It is based on a combined heat input rate of 23.16 MMBtu/hr and natural gas SO_x emission factor of 0.0006 lb/MMBtu, Table 1.4-1 of AP-42.
- (B) SO_x process is SO_x emissions generated from the manufacturing process, which is based on 20 ppmv and 31,000 scfm.

Pollutant	Process Lines 31 & 32 Combined Historic Potential to Emit lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ROC	7,214	7,295	7,375	7,375
NO_x	12,398	12,536	12,674	12,674
SO_x	12,947	13,091	13,235	13,235
PM_{10}	11,232	11,357	11,482	11,482
CO	46,894	47,415	47,936	47,936

Note: Number of days in quarter = 90, 91, 92 & 92

2. PROPOSED POTENTIAL TO EMIT:

Graphite fiber manufacturing process Line 31 (A/C 19643) and Line 32 (A/C 19644)

Pollutant	Process Lines 31 & 32 Combined Proposed Potential to Emit lb/hour (Based on 3-hour Average)		
	Main Stack	Fugitive Exhaust	Total
ROC	3.32	0.02	3.34
NO_x	5.74	N/A	5.74
SO_x combustion	0.014 ^(A)	N/A	5.994
SO_x process	5.98 ^(B)	N/A	
PM_{10}	5.2	N/A	5.2
CO	21.71	N/A	21.71

- (A) SO_x combustion is SO_x emissions generated from the combustion product of the four afterburners. It is based on a combined heat input rate of 23.16 MMBtu/hr and natural gas SO_x emission factor of 0.0006 lb/MMBtu, Table 1.4-1 of AP-42.
- (B) SO_x process is SO_x emissions generated from the manufacturing process, which is based on the 20 ppmv and 31,000 scfm.

Pollutant	Process Lines 31 & 32 Combined Proposed Potential to Emit lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ROC	7,214	7,295	7,375	7,375
NO _x	12,398	12,536	12,674	12,674
SO _x	12,947	13,091	13,235	13,235
PM ₁₀	11,232	11,357	11,482	11,482
CO	46,894	47,415	47,936	47,936

Note: Number of days in quarter = 90, 91, 92 & 92

3. CALCULATION OF BACT TRIGGER:

NEI (BACT) = Net Emissions Increase

= Proposed Potential to Emit - Historic Potential to Emit

MPE = Maximum Potential Emissions on a 24-Hour Day Operation

Pollutant	NEI (BACT) lb/qtr	Is NEI (BACT) >0?	MPE lb/day	BACT Trigger lb/day	Is BACT Required?
ROC	0	No	N/A	>10	No
NO _x	0	No	N/A	>10	No
SO _x	0	No	N/A	>10	No
PM ₁₀	0	No	N/A	>10	No
CO	0	No	N/A	>550	No

4. CALCULATION OF OFFSET TRIGGER FOR ROC AND NO_x:

Permit No.	Emissions Unit	Stationary Source (A) Cumulative Emissions Increase (lb/quarter)	
		ROC	NO _x
P/O 19322	Boiler Standby (B)	15	278
P/O 11425	APC Incinerator #1 [Line 31]	N/A	N/A
P/O 11426	APC Incinerator #3 [Line 32]	N/A	N/A
P/O 13570	APC Baghouse [Line 32]	N/A	N/A
P/O 15839	IC Engine Standby	12	823
P/O 15840	APC Baghouse [Line 31]	N/A	N/A
P/O 15841	APC Incinerator #2 [Line 31]	N/A	N/A
P/O 19171	Boiler	41	269
P/O 18279	APC Incinerator #4 [Line 32]	N/A	N/A
P/O 19643	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 20519 and 20520	

P/O 19644	Graphite Fiber Manufacturing Process Line 32		
P/O 20149	Boiler	23	46
A/C 20519	Graphite Fiber Manufacturing Process Line 31	7,375	12,674
A/C 20520	Graphite Fiber Manufacturing Process Line 32		
Total		7,451	13,812
Offset Trigger Level		≥5,000	≥5,000

- (A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine.
- (B) This is a standby unit. Only one boiler, either the primary boiler (P/O 19171) or the standby boiler, will operate at any given time. Since the two boilers will not operate simultaneously, only the larger of the two boiler emissions will be added to the NSR totals.

5. CALCULATION OF OFFSET TRIGGER FOR SO_x, PM₁₀ AND CO:

Permit No.	Emissions Unit	Stationary Source Cumulative Emission Increase Since 01-01-77 (A) lb/quarter		
		SO _x	PM ₁₀	CO
P/O 9828	Boiler Standby (B)	2	21	234
P/O 11425	APC Incinerator #1 [Line 31]	N/A	N/A	N/A
P/O 11426	APC Incinerator #3 [Line 32]	N/A	N/A	N/A
P/O 13570	APC Baghouse [Line 32]	N/A	N/A	N/A
P/O 15839	IC Engine Standby	0	13	711
P/O 15840	APC Baghouse [Line 31]	N/A	N/A	N/A
P/O 15841	APC Incinerator #2 [Line 31]	N/A	N/A	N/A
P/O 19171	Boiler	4	56	546
P/O 18279	APC Incinerator #4 [Line 32]	N/A	N/A	N/A
P/O 19643	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 20519 and 20520		
P/O 19644	Graphite Fiber Manufacturing Process Line 32			
P/O 20149	Boiler	3	32	1242
A/C 20519	Graphite Fiber Manufacturing Process Line 31	13,235	11,482	47,936
A/C 20520	Graphite Fiber Manufacturing Process Line 32			
Total		13,244	11,583	49,500 (C)
Offset Trigger Level		≥13,650	≥7,500	≥49,500

- (A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine.
- (B) This is a standby unit. Only one boiler, either the primary boiler (A/C 19171) or the standby boiler, will operate at any given time. Since the two boilers will not operate simultaneously, only the larger of the two boiler emissions will be added to the NSR totals.
- (C) Grafil Inc. has requested permit conditions that limit the facility wide emissions to remain below the offset trigger level for CO.

6. CALCULATION OF EMISSION OFFSETS FOR ROC AND NO_x:

There is no net emission increase for both ROC and NO_x. Therefore, emission offsets are not required for ROC and NO_x.

7. CALCULATION OF EMISSION OFFSETS FOR SO_x, PM₁₀ AND CO:

There is no net emission increase for SO_x, PM₁₀ and CO. Therefore, no additional emission offsets are required for SO_x, PM₁₀ and CO.

COMPLIANCE WITH RULES AND REGULATIONS:

1. AB 3205 COMPLIANCE:

There is no K-12 school within 1,000 feet of this graphite fiber manufacturing process. Therefore, H&S Code §42301.6 does not apply.

2. NSR COMPLIANCE:

Rule 202 - New Source Review

Section 301 - BACT

There is no net emission increase from this modification. Therefore, additional BACT requirement will not be required for the modification of the graphite fiber manufacturing process line 31 and 32.

Section 302 - Offsets

The proposed emissions of ROC, NO_x and PM₁₀, exceed the offset thresholds. As there is no net ROC, NO_x or PM₁₀ emissions increase from this modification, additional emission offsets for ROC, NO_x or PM₁₀ will not be required.

Section 307 - Denial, Failure to Meet CEQA

The SMAQMD utilizes *Guide to Air Quality Assessment in Sacramento County, SMAQMD, July 2004* as guide during the initial study phase of a proposed project to determine the level of review necessary under CEQA (referenced in the IC Engine Policy manual last updated December of 2005).

- a. ROG and NO_x – This project assume the same emission level. Therefore, although the ROC and NO_x emissions are greater than 65 lbs/day, the net change of emission is zero.
- b. Other pollutants – the project does not result in operational emissions that could lead to violations of any applicable state Ambient Air Quality Standards.
- c. Toxic Air Contaminants – The project complies with T-BACT.
- d. Cumulative TACs – The project is located at a sources identified in the AB2588 program; however, the cumulative facility risk does not exceed 10 in one million. No additional risk is expected from this project. Therefore, it is anticipated that the equipment will not create an adverse environmental impact.

As the project does not exceed any of the criteria above, the project does not require further CEQA review.

Sections 405-408 - CARB, EPA and Public Notification:

The emissions increase for each pollutant does not exceed the levels specified in Rule 202, Section 112. Therefore, public noticing specified by Sections 405, 406, 407, and 409.2 are not required.

3. PSD COMPLIANCE: Not applicable

4. PROHIBITORY RULES COMPLIANCE

Rule 401 - Ringelmann Chart

The graphite fiber manufacturing process is expected to comply with the Ringelmann No. 1 or 20% opacity requirement of this rule if the equipment is operated and maintained properly.

Rule 404 - Particulate Matter

Total particulate matter emissions from the graphite fiber manufacturing process are expected to comply with the 0.1 gr/dscf concentration limitation of this rule.

Given: Maximum Emission Rate, PM10 = 5.2 lb/hr (Permit limit)
Combined Air Flow Rate from the Main Stack = 27,000 DSCFM (estimated)
Operating Schedule = 24 hrs/day = 365 days/year

$$\begin{aligned}\text{Grain Loading} &= \frac{[5.2 \text{ lb/hr}][7,000 \text{ gr/lb}][1 \text{ hr/60 min}]}{[27,000 \text{ cf/min}]} \\ &= 0.022 \text{ gr/dscf} < 0.1 \text{ gr/dscf}\end{aligned}$$

Rule 406 - Specific Contaminants

The graphite fiber manufacturing process is expected to comply with the emissions limit of 0.2% by volume sulfur compound as SO₂ and 0.1 gr/dscf of other combustion gases calculated to 12% CO₂.

Rule 420 - Sulfur Content of Fuels

The afterburners will be fueled by pipeline-quality natural gas, which complies with the 50 grains H₂S/100 ft³ fuel limit of this rule.

5. NSPS COMPLIANCE: Not applicable.

6. NESHAP COMPLIANCE: Not applicable

RECOMMENDATION:

This equipment should comply with all applicable District rules and regulations. An Authority to Construct should be issued indicating the conditions outlined in this Authority to Construct Evaluation.

PREPARED BY: Carla J Prasetyo Jo **DATE:** _____

REVIEWED BY: _____ **DATE:** _____

AUTHORITY TO CONSTRUCT EVALUATION**APPLICATION NO.:** 20835**DATE:**March 12, 2009 JULY 9, 2008**EVALUATED BY:**Carla J. Prasetyo Jo**FACILITY NAME:** Grafil Inc.**LOCATION OF EQUIPMENT:** 5900 88th Street, Sacramento, CA 95828**PROPOSAL:** Obtain an Authority to Construct for a new boiler.**INTRODUCTION:**

Grafil Inc. is applying for an Authority to Construct/Permit to Operate for a new boiler. The boiler will be used to generate steam for the manufacturing operation. Grafil Inc. also proposes to limit their quarterly fuel usage to 1,907,000 cubic feet/quarter and accept 9 ppmvd and 100 ppmvd @ 3% O₂ as their NO_x and CO emission limit.

FLOW DIAGRAM: see permit folder.**EQUIPMENT DESCRIPTION:****A/C 20835 – Boiler**

Make: Cleaver Brooks
Model No.: Promethean 4WI-NT-100
Serial No.: TBD
Rated Heat Input: 4.8 MMBTU/hr
Fuel Type: Natural Gas
Boiler Use: Industrial Process

CONTROL EQUIPMENT EVALUATION:

The natural gas-fired boiler is equipped with ultra low-NO_x burner to reduce NO_x emissions.

PROCESS RATE:

Emissions Unit	Maximum Fuel Usage Ft ³ /hour
Boiler, 4.8 MMBtu/hr	4,800

OPERATING SCHEDULE:

The boiler may operate up to 24 hours/day and using 1,907,000 cubic feet/quarter.

EMISSIONS CALCULATIONS:

- HISTORIC POTENTIAL TO EMIT:** This is a newly permitted unit; therefore, no historical Potential to Emit.

2. PROPOSED POTENTIAL TO EMIT:

Pollutant	Emission Factor(A) lb/mmcf	Proposed Potential to Emit (B)	
		lb/day	lb/quarter
ROC	5.5	0.6	10
NO _x	10.9	1.3	21
SO _x	0.6	0.07	1
PM ₁₀	7.6	0.9	14
CO	74	8.5	141

(A) Emission factors for ROC, SO_x and PM₁₀ are from AP-42, Tables 1.4-1 ~ 1.4-2, *Emission Factors for Criteria Pollutants from Natural Gas Combustion*, pg 1.4-5 ~ 1.4-6 (2/98). Emission factors for NO_x and CO are based on the 9 ppmvd and 100 ppmvd @ 3% O₂, respectively.

(B) Emissions are based on a maximum fuel usage of 4,800 ft³/hour, 24 hours/day, 1,907,000 ft³/quarter.

3. CALCULATION OF BACT TRIGGER:

$$\begin{aligned} \text{NEI (BACT)} &= \text{Net Emissions Increase} \\ &= \text{Proposed Potential to Emit} - \text{Historic Potential to Emit} \end{aligned}$$

MPE = Maximum Potential Emissions on a 24-Hour Day Operation

Pollutant	NEI (BACT) lb/qtr	Is NEI (BACT) > 0?	MPE lb/day	BACT Trigger lb/day	Is BACT Required?
ROC	10	Yes	0.6	≥10	No
NO _x	21	Yes	1.3	≥10	No
SO _x	1	Yes	0.07	≥10	No
PM ₁₀	14	Yes	0.9	≥10	No
CO	141	Yes	8.5	≥550	No

4. CALCULATION OF OFFSET TRIGGER FOR ROC AND NO_x:

Permit No.	Emissions Unit	Stationary Source (A) Cumulative Emissions Increase (lb/quarter)	
		ROC	NO _x
P/O 11425	APC Incinerator #1 [Line 31]	(B)	(B)
P/O 11426	APC Incinerator #3 [Line 32]	(B)	(B)
P/O 13570	APC Baghouse [Line 32]	(B)	(B)
P/O 15839	IC Engine Standby	12	823
P/O 15840	APC Baghouse [Line 31]	(B)	(B)
P/O 15841	APC Incinerator #2 [Line 31]	(B)	(B)
P/O 18279	APC Incinerator #4 [Line 32]	(B)	(B)
P/O 20519	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 21252 and 21253	
P/O 20520	Graphite Fiber Manufacturing Process Line 32		
P/O 20149	Boiler	See Modification in A/C 21254	
A/C 21244	IC Engine Standby	62	302
A/C 21252	Graphite Fiber Manufacturing Process Line 31	7,375	12,674
A/C 21253	Graphite Fiber Manufacturing Process Line 32		
A/C 21254	Boiler	23	46
A/C 20835	Boiler	10	21
Total		7,482	13,866
Offset Trigger Level		≥5,000	≥5,000

- (A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine.
- (B) Potential to emit is included in the Graphite Fiber Manufacturing process.

5. CALCULATION OF OFFSET TRIGGER FOR SO_x, PM₁₀ AND CO:

Permit No.	Emissions Unit	Stationary Source Cumulative Emission Increase Since 01-01-77 (A) lb/quarter		
		SO _x	PM ₁₀	CO
P/O 11425	APC Incinerator #1 [Line 31]	(B)	(B)	(B)
P/O 11426	APC Incinerator #3 [Line 32]	(B)	(B)	(B)
P/O 13570	APC Baghouse [Line 32]	(B)	(B)	(B)
P/O 15839	IC Engine Standby	0	13	711
P/O 15840	APC Baghouse [Line 31]	(B)	(B)	(B)
P/O 15841	APC Incinerator #2 [Line 31]	(B)	(B)	(B)
P/O 18279	APC Incinerator #4 [Line 32]	(B)	(B)	(B)
P/O 20519	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 21252 and 21253		
P/O 20520	Graphite Fiber Manufacturing Process Line 32			
P/O 20149	Boiler	See Modification in A/C 21254		
A/C 21244	IC Engine Standby	10	9	228
A/C 21252	Graphite Fiber Manufacturing Process Line 31	13,235	11,482	46,368
A/C 21253	Graphite Fiber Manufacturing Process Line 32			
A/C 21254	Boiler	3	32	1242
A/C 20835	Boiler	1	14	141
Total		13,249	11,550	48,690
Offset Trigger Level		≥13,650	≥7,500	≥49,500

- (A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine.
 (B) Potential to emit is included in the Graphite Fiber Manufacturing process.

6. CALCULATION OF EMISSION OFFSETS FOR ROC AND NOx:

Emission offsets are triggered for ROC and NOx. The net emissions increase from the new boiler is as shown. Since the increase is less than 25 tpy of ROC or NOx, this modification is considered non-major modification.

	NOx Emission lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
Deferred Emission for P/O 20149	46	46	46	46
Proposed PTE for A/C 20835	21	21	21	21
Historic PTE for A/C 20835	0	0	0	0
Offset required (Rule 202, Section 418.1.b)	67	67	67	67

	ROC Emission lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
Deferred Emission for P/O 20149	23	23	23	23
Proposed PTE for A/C 20835	11	11	11	11
Historic PTE for A/C 20835	0	0	0	0
Offset required (Rule 202, Section 418.1.b)	34	34	34	34

Grafil Inc shall provide ERC in sufficient quantity to fully offset the increase of ROC and NOx emissions as shown above. However, since the offset required for ROC, on a daily basis, is equal or less than 0.5 lb/day, the District will defer this de minimis amount of required ROC offsets until a future permit action at this facility causes the amount of required ROC offsets to exceed 0.5 lb/day, when all deferred amounts of ROC offsets are included. At that time the deferred amount will be offset as part of the future permitting action.

7. CALCULATION OF EMISSION OFFSETS FOR SO_x, PM₁₀ AND CO:

Emission offsets are not triggered for SO_x, and CO.

Emission offsets are triggered for PM₁₀. The net emissions increase from the new boiler is as shown. Since the increase is less than 15 tpy of PM₁₀, this modification is considered non-major modification.

	PM ₁₀ Emission lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
Deferred Emission for P/O 20149	32	32	32	32
Proposed PTE for A/C 20835	14	14	14	14
Historic PTE for A/C 20835	0	0	0	0
Offset required (Rule 202, Section 418.1.b)	46	46	46	46

Since the offset required for PM₁₀, on a daily basis, is equal or less than 0.5 lb/day, the District will defer this de minimis amount of required PM₁₀ offsets until a future permit action at this facility causes the amount of required PM₁₀ offsets to exceed 0.5 lb/day, when all deferred amounts of ROC offsets are included. At that time the deferred amount will be offset as part of the future permitting action.

COMPLIANCE WITH RULES AND REGULATIONS:

1. AB 3205 COMPLIANCE:

There is no K-12 school within 1,000 feet of this project. Therefore, H&S Code §42301.6 does not apply.

2. NSR COMPLIANCE:

Rule 202 - New Source Review

Section 301 - BACT

The proposed potential to emit from this emissions unit does not meet or exceeds the BACT threshold for the affected pollutant as specified in Section 301.1. Therefore BACT is not required.

Section 302 - Offsets

The amount of ROC, NOx and PM10 offsets required for this new source are 34, 67 and 46 lb/quarter. On a daily basis, the ROC and PM10 offset requirement is 0.5 lb ROC/day or less. The SMAQMD will defer this de minimis amount of required ROC and PM10 offsets until a future permit action at this facility causes the amount of required ROC and PM10 offsets to exceed 0.5 lb ROC/day when including all deferred amounts of ROC offsets. At that time the deferred amount will be offset as part of the future permitting action. The proposed emissions of SOx and CO are below the offset trigger level specified in this section. Grafil shall offset the net emissions increases for the following boiler operation as shown in the table below. Emissions are assumed to be equal for all quarters. Grafil has proposed to use ERC from their boiler shutdown to satisfy NOx offset requirement.

Pollutant	Net Emissions Increase, lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
NOx	67	67	67	67

Section 307 - Denial, Failure to Meet CEQA

The SMAQMD utilizes *Guide to Air Quality Assessment in Sacramento County, SMAQMD, July 2004* as guide during the initial study phase of a proposed project to determine the level of review necessary under CEQA.

- a. ROG and NOx – ROG and NOx – the daily emissions are 0.6 lb/day of ROG and 1.3 lb/day of NOx. As these levels are below the trigger levels of 65 lb/day.
- b. Other pollutants – the project does not result in operational emissions that could lead to violations of any applicable state Ambient Air Quality Standards.
- c. Toxic Air Contaminants – The project doesn't trigger T-BACT and the state ATCM.
- d. Cumulative TACs – The project is located at a sources identified in the AB2588 program; however, the cumulative facility risk does not exceed 10 in one million. No additional risk above the de minimus level is expected from this project. Therefore, it is anticipated that the equipment will not create an adverse environmental impact.

As the project does not exceed any of the criteria above, the project does not require further CEQA review.

Sections 405-408 - CARB, EPA and Public Notification:

The emissions increase for each pollutant does not exceed the levels specified in Rule 202, Section 112. However, since emissions offset are required, this permit action is subject to CARB, EPA and public review. The preliminary decision was sent to CARB and EPA for review and comment on 07/11/08. A public notice was published on Sacramento Bee on 07/11/08 (see Appendix A for a copy of CARB/EPA and public notices).

3. PSD COMPLIANCE: Not applicable

4. PROHIBITORY RULES COMPLIANCE

Rule 401 - Ringelmann Chart

Visible emissions are expected to comply with the 20% opacity requirement of this rule.

Rule 402 - Nuisance

The boiler is fired on natural gas and it is expected to comply with the requirement of this rule.

Rule 406 - Specific Contaminants

The emission unit is expected to comply with the emissions limit of 0.2% by volume sulfur compound as SO₂ and 0.1 gr/dscf of other combustion gases calculated to 12% CO₂.

Rule 411 – Boiler NO_x

The boiler is subject to this rule. A source testing condition will be required to demonstrate compliance with the 9 ppmvd at 3% O₂ NO_x and 100 ppmvd at 3% O₂ CO standards of this rule.

Rule 420 - Sulfur Content of Fuels

The boiler will be fueled primarily by pipeline-quality natural gas, which complies with the 50 grains H₂S/100 ft³ fuel limit of this rule.

5. **NSPS COMPLIANCE:** The New Source Performance Standard for small industrial-commercial-institutional steam generating units affects those units for which construction, modification, or reconstruction is commenced after June 9, 1989, and which have a heat input capacity of 10-100 mmBTU/hr. The NSPS standards have been applied to the emissions of sulfur dioxide (SO₂) and particulate matter (PM₁₀). The boiler is rated below 10.00 mmBTU/hr, thus NSPS compliance is not applicable.

6. **NESHAP COMPLIANCE:** Not applicable

RECOMMENDATION:

This equipment should comply with all applicable District rules and regulations. An Authority to Construct should be issued indicating the conditions outlined in this Authority to Construct Evaluation.

PREPARED BY: Carla J Prasetyo Jo **DATE:** _____

REVIEWED BY: _____ **DATE:** _____

**AIR QUALITY
MANAGEMENT DISTRICT****AUTHORITY TO CONSTRUCT EVALUATION**

APPLICATION NO.:	21252 - 21254
DATE:	07-03-2008
EVALUATED BY:	Carla J. Prasetyo Jo

FACILITY NAME: Grafil Inc.**LOCATION OF EQUIPMENT:** 5900 88th Street, Sacramento, CA 95828**PROPOSAL:** Obtain an Authority to Construct to modify their existing boiler (P/O 20149), graphite fiber manufacturing process Line 31 (P/O 20519) and Line 32 (P/O 20520).**INTRODUCTION:**

Grafil Inc. is applying for an Authority to Construct/Permit to Operate for the modification of their existing boiler (P/O 20149), graphite fiber manufacturing process Line 31 (P/O 20519) and Line 32 (P/O 20520). Originally, facility is limited by a facility-wide CO emission limit to keep the facility wide emission below the offset threshold limit. For this modification, Grafil Inc. proposes to decrease the CO emission limit for graphite manufacturing lines 31 and 32 and remove the facility-wide CO emission limit. There is no increase of emission resulting from this modification.

EQUIPMENT DESCRIPTION:**A/C 21252 - Graphite Fiber Manufacturing Process Line 31 Consisting of:**

1. Four (4) Oxidation Ovens, Electrically-heated, 235 KW each, Vented to APC Afterburner #1 (P/O 11425)
2. Two (2) Oxidation Ovens^(A), Electrically-heated, 500 KW each, Vented to APC Afterburner #1 (P/O 11425)
3. Low Temperature Furnace, 252 KW^(B), Electrically-heated, Vented to APC Afterburner #2^(C) (P/O 15841)
4. High Temperature Furnace, 400 KW, Electrically-heated, Vented to APC Afterburner #2^(C) (P/O 15841)
5. High Temperature Furnace End-Cap Extraction Filter
6. Electrolyte Surface Treatment Bath, Vented to Atmosphere
7. Surface Treated Fiber Dryer
8. Size Bath
9. Sized Fiber Dryer
10. Sized Make-up Facility
11. Two (2) Low Temperature Furnace End-Cap hoods, Low Temperature Rodding Exhaust, Two (2) Rodding Point Hoods, Two (2) High Temperature End-Cap Hoods, Vented to Process Exhaust Fan
12. Process Exhaust Fan, One (1) Primary and One (1) Standby, Vented to APC Afterburner #1 (P/O 11425)
13. Continuous Emission Monitor, One (1) Primary and One (1) Standby, Interscan Continuous Hydrogen Cyanide (HCN) Monitor, Model No. LD28, Range: 0 – 100 ppm HCN, Located in Plant Exhaust Stack for Afterburner Exhaust and Plant Air Ducting (One HCN Monitor Serving Both Line 31 [A/C 21252] and Line 32 [A/C 21253])

- (A) Oxidation Ovens (2)
C. A. Litzler Company
Electrically-Heated
500 KW each
Maximum Temperature - 572°F
- (B) Low Temperature Furnace
Resistance Heater Rating – 252 KW
- (C) APC Afterburner #2 (P/O 15841)
Zeeco, Inc.
Three-Stage Oxidation Process
Heat Input Rating – 2.4 MMBtu/hr

A/C 21253 - Graphite Fiber Manufacturing Process Line 32 Consisting of:

- 1. Four (4) Oxidation Ovens, Electrically-heated, 235 KW each, Vented to APC Afterburner #3 (P/O 11426)
 - 2. Two (2) Oxidation Ovens ^(A), Electrically-heated, 400 KW each, Vented to APC Afterburner #3 (P/O 11426)
 - 3. Low Temperature Furnace ^(B), 252 KW, Electrically-heated, Vented to APC Afterburner ^(C) #4 (P/O 18279)
 - 4. High Temperature Furnace, 400 KW, Electrically-heated, Vented to APC Afterburner ^(C) #4 (P/O 18279)
 - 5. High Temperature Furnace End-Cap Extraction Filter
 - 6. Electrolyte Surface Treatment Bath, Vented to Atmosphere
 - 7. Surface Treated Fiber Dryer
 - 8. Size Bath
 - 9. Sized Fiber Dryer
 - 10. Sized Make-up Facility
 - 11. Two (2) Low Temperature Furnace End-Cap Hoods, Low Temperature Furnace Rodding Exhaust, Two (2) Rodding Point Hoods, Two (2) High Temperature End-Cap Hoods, Vented to Process Exhaust Fan
 - 12. Process Exhaust Fan, One (1) Primary and One (1) Standby, Vented to APC Afterburner #3 (P/O 11426)
 - 13. Continuous Emission Monitor, One (1) Primary and One (1) Standby, Interscan Continuous Hydrogen Cyanide (HCN) Monitor, Model No. LD28, Range: 0 – 100 ppm HCN, Located in Plant Exhaust Stack for Afterburner Exhaust and Plant Air Ducting (One HCN Monitor Serving Both Line 31 [A/C 21252] and Line 32 [A/C 21253])
 - 14. Waste Heat Recovery Boiler, 2.4^(D) MMBtu/hr, Vented to APC Baghouse (P/O 19659)
- (A) Oxidation Ovens (2)
Despatch Industries
Electrically-Heated
400 KW each
Maximum Zone Temperature - 572°F
 - (B) Low Temperature Furnace
Resistance Heater Rating – 252 KW
 - (C) APC Incinerator #4 (P/O 18279)
Zeeco, Inc.
Three-Stage Oxidation Process
Heat Input Rating – 2.4 MMBtu/hr
 - (D) Waste Heat Recovery Boiler
Estimated Rating – 2.4 MMBtu/hr based on APC Incinerator #4's rating

A/C 21254 – Boiler

Make: Cleaver Brooks
 Model No.: Promethean CBI 200-150-150
 Serial No.: OL103578
 Rated Heat Input: 6.124 MMBTU/hr
 Fuel Type: Natural Gas
 Boiler Use: Industrial Process

FLOW DIAGRAM: see permit folder.

CONTROL EQUIPMENT EVALUATION:

The manufacturing process line 31 includes two APC afterburners. The exhaust from the oxidation ovens and fugitive emissions generated during process upset events, including start up, is vented to incinerator #1 (identified in the schematic diagram as the outside thermal oxidizer, O/TO). The exhausts from the low temperature furnace and the high temperature furnace is vented to incinerator #2 (identified as inside thermal oxidizer, I/TO), followed by a baghouse.

The manufacturing process line 32 includes two APC incinerators. The exhaust from the oxidation ovens and fugitive emissions generated during process upset events, including start up, is vented to incinerator #3 (identified in the schematic diagram as the outside thermal oxidizer, O/TO). The exhausts from the low temperature furnace and the high temperature furnace is vented to incinerator #4 (identified as inside thermal oxidizer, I/TO), followed by a baghouse. Source tests, as a permit requirement, have been conducted and demonstrated compliance with the emissions limitation.

The natural gas-fired boiler is equipped with low-NO_x burner to reduce NO_x emissions, which meets 9 ppm of NO_x at 3% O₂.

OPERATING SCHEDULE:

The graphite fiber manufacturing process is permitted to operate 24 hours/day and 92 days/quarter. The boiler permitted to operate up to 24 hours/day and using up to 4,211,000 cubic feet/quarter.

EMISSIONS CALCULATIONS:**1. HISTORIC POTENTIAL TO EMIT:**

Pollutant	Process Lines 31 & 32 Combined Historic Potential to Emit			
	lb/hour (Based on 3-hour Average)			lb/day
	Main Stack	Fugitive Exhaust	Total	
ROC	3.32	0.02	3.34	80.2
NO _x	5.74	N/A	5.74	137.8
SO _x combustion	0.014 ^(A)	N/A	5.994	143.9
SO _x process	5.98 ^(B)	N/A		
PM ₁₀	5.2	N/A	5.2	124.8
CO	21.71	N/A	21.71	521.0

(A) SO_x combustion is SO_x emissions generated from the combustion product of the four afterburners. It is based on a combined heat input rate of 23.16 MMBtu/hr and natural gas SO_x emission factor of 0.0006 lb/MMBtu, Table 1.4-1 of AP-42 (7/98).

(B) SO_x process is SO_x emissions generated from the manufacturing process, which is based on 20 ppmv and 31,000 scfm.

Pollutant	Process Lines 31 & 32 Combined Historic Potential to Emit lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ROC	7,214	7,295	7,375	7,375
NO _x	12,398	12,536	12,674	12,674
SO _x	12,947	13,091	13,235	13,235
PM ₁₀	11,232	11,357	11,482	11,482
CO	46,894	47,415	47,936	47,936

Note: Number of days in quarter = 90, 91, 92 & 92

P/O 20149 - Boiler

Pollutant	Emission Factor(A) lb/mmcf	Historic Potential to Emit (B)	
		lb/day	lb/quarter
ROC	5.5	0.8	23
NO _x	10.9	1.6	46
SO _x	0.6	0.09	3
PM ₁₀	7.6	1.1	32
CO	295	43.4	1,242

(A) Emission factors for ROC, SO_x and PM₁₀ are from AP-42, Tables 1.4-1 ~ 1.4-2, *Emission Factors for Criteria Pollutants from Natural Gas Combustion*, pg 1.4-5 ~ 1.4-6 (7/98). Emission factors for NO_x and CO are based on the 9 ppmvd and 400 ppmvd @ 3% O₂, respectively, as proposed by the applicant.

(B) Emissions are based on a maximum fuel usage of 6,124 ft³/hour, 24 hours/day, 4,211,000 ft³/quarter.

2. PROPOSED POTENTIAL TO EMIT:

Pollutant	Process Lines 31 & 32 Combined Historic Potential to Emit			
	lb/hour (Based on 3-hour Average)			lb/day
	Main Stack	Fugitive Exhaust	Total	
ROC	3.32	0.02	3.34	80.2
NO _x	5.74	N/A	5.74	137.8
SO _{x combustion}	0.014 ^(A)	N/A	5.994	143.9
SO _{x process}	5.98 ^(B)	N/A		
PM ₁₀	5.2	N/A	5.2	124.8
CO	21.0	N/A	21.0	504.0

(A) SO_{x combustion} is SO_x emissions generated from the combustion product of the four afterburners. It is based on a combined heat input rate of 23.16 MMBtu/hr and natural gas SO_x emission factor of 0.0006 lb/MMBtu, Table 1.4-1 of AP-42.

(B) SO_{x process} is SO_x emissions generated from the manufacturing process, which is based on the 20 ppmv and 31,000 scfm.

Pollutant	Process Lines 31 & 32 Combined Proposed Potential to Emit lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ROC	7,214	7,295	7,375	7,375
NO _x	12,398	12,536	12,674	12,674
SO _x	12,947	13,091	13,235	13,235
PM ₁₀	11,232	11,357	11,482	11,482
CO	45,360	45,864	46,368	46,368

Note: Number of days in quarter = 90, 91, 92 & 92

A/C 21254 - Boiler

Pollutant	Emission Factor(A) lb/mmcf	Proposed Potential to Emit (B)	
		lb/day	lb/quarter
ROC	5.5	0.8	23
NO _x	10.9	1.6	46
SO _x	0.6	0.09	3
PM ₁₀	7.6	1.1	32
CO	295	43.4	1,242

(A) Emission factors for ROC, SO_x and PM₁₀ are from AP-42, Tables 1.4-1 ~ 1.4-2, *Emission Factors for Criteria Pollutants from Natural Gas Combustion*, pg 1.4-5 ~ 1.4-6 (2/98). Emission factors for NO_x and CO are based on the 9 ppmvd and 400 ppmvd @ 3% O₂, respectively, as proposed by the applicant.

(B) Emissions are based on a maximum fuel usage of 6,124 ft³/hour, 24 hours/day, 4,211,000 ft³/quarter.

3. CALCULATION OF BACT TRIGGER:

NEI (BACT) = Net Emissions Increase

= Proposed Potential to Emit - Historic Potential to Emit

MPE = Maximum Potential Emissions on a 24-Hour Day Operation

A/C 21252 & 21253

Pollutant	NEI (BACT) lb/qtr	Is NEI (BACT) > 0?	MPE lb/day	BACT Trigger lb/day	Is BACT Required?
ROC	0	No	80.2	≥10	No
NO _x	0	No	137.8	≥10	No
SO _x	0	No	143.9	≥10	No
PM ₁₀	0	No	124.8	≥10	No
CO	-1,534	No	504.0	≥550	No

A/C 21254

Pollutant	NEI (BACT) lb/qtr	Is NEI (BACT) >0?	MPE lb/day	BACT Trigger lb/day	Is BACT Required?
ROC	0	No	0.8	≥10	No
NO _x	0	No	1.6	≥10	No
SO _x	0	No	0.09	≥10	No
PM ₁₀	0	No	1.1	≥10	No
CO	0	No	43.4	≥550	No

4. CALCULATION OF OFFSET TRIGGER FOR ROC AND NO_x:

Permit No.	Emissions Unit	Stationary Source (A) Cumulative Emissions Increase (lb/quarter)	
		ROC	NO _x
P/O 11425	APC Incinerator #1 [Line 31]	N/A	N/A
P/O 11426	APC Incinerator #3 [Line 32]	N/A	N/A
P/O 13570	APC Baghouse [Line 32]	N/A	N/A
P/O 15839	IC Engine Standby	12	823
P/O 15840	APC Baghouse [Line 31]	N/A	N/A
P/O 15841	APC Incinerator #2 [Line 31]	N/A	N/A
P/O 18279	APC Incinerator #4 [Line 32]	N/A	N/A
P/O 20519	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 21252 and 21253	
P/O 20520	Graphite Fiber Manufacturing Process Line 32		
P/O 20149	Boiler	See Modification in A/C 21254	
A/C 21244	IC Engine Standby	62	302
A/C 21252	Graphite Fiber Manufacturing Process Line 31	7,375	12,674
A/C 21253	Graphite Fiber Manufacturing Process Line 32		
A/C 21254	Boiler	23	46
Total		7,472	13,845
Offset Trigger Level		≥5,000	≥5,000

(A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine, which is based on 200 hrs/quarter.

5. CALCULATION OF OFFSET TRIGGER FOR SO_x, PM₁₀ AND CO:

Permit No.	Emissions Unit	Stationary Source Cumulative Emission Increase Since 01-01-77 (A) lb/quarter		
		SO _x	PM ₁₀	CO
P/O 11425	APC Incinerator #1 [Line 31]	N/A	N/A	N/A
P/O 11426	APC Incinerator #3 [Line 32]	N/A	N/A	N/A
P/O 13570	APC Baghouse [Line 32]	N/A	N/A	N/A
P/O 15839	IC Engine Standby	0	13	711
P/O 15840	APC Baghouse [Line 31]	N/A	N/A	N/A
P/O 15841	APC Incinerator #2 [Line 31]	N/A	N/A	N/A
P/O 18279	APC Incinerator #4 [Line 32]	N/A	N/A	N/A
P/O 20519	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 21252 and 21253		
P/O 20520	Graphite Fiber Manufacturing Process Line 32			
P/O 20149	Boiler	See Modification in A/C 21254		
A/C 21244	IC Engine Standby	10	9	228
A/C 21252	Graphite Fiber Manufacturing Process Line 31	13,235	11,482	46,368
A/C 21253	Graphite Fiber Manufacturing Process Line 32			
A/C 21254	Boiler	3	32	1242
Total		13,248	11,536	48,549
Offset Trigger Level		≥13,650	≥7,500	≥49,500

(A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine, which is based on 200 hrs/quarter.

6. CALCULATION OF EMISSION OFFSETS FOR ROC AND NO_x:

There is no net emission increase for both ROC and NO_x. Therefore, emission offsets are not required for ROC and NO_x.

7. CALCULATION OF EMISSION OFFSETS FOR SO_x, PM₁₀ AND CO:

There is no net emission increase for SO_x, PM₁₀ and CO. Therefore, no additional emission offsets are required for SO_x, PM₁₀ and CO.

COMPLIANCE WITH RULES AND REGULATIONS:

1. AB 3205 COMPLIANCE:

There is no K-12 school within 1,000 feet of this graphite fiber manufacturing process. Therefore, H&S Code §42301.6 does not apply.

2. NSR COMPLIANCE:

Rule 202 - New Source Review

Section 301 - BACT

There is no net emission increase from this modification. Therefore, additional BACT requirement will not be required for the modification of the boiler, graphite fiber manufacturing process line 31 and 32.

Section 302 - Offsets

The proposed emissions of ROC, NO_x and PM₁₀, exceed the offset thresholds. As there is no net ROC, NO_x or PM₁₀ emissions increase from this modification, additional emission offsets for ROC, NO_x or PM₁₀ will not be required.

Section 307 - Denial, Failure to Meet CEQA

The SMAQMD utilizes *Guide to Air Quality Assessment in Sacramento County, SMAQMD, July 2004* as guide during the initial study phase of a proposed project to determine the level of review necessary under CEQA (referenced in the IC Engine Policy manual last updated December of 2005).

- a. ROG and NO_x – This project assume the same emission level. Therefore, although the ROC and NO_x emissions are greater than 65 lbs/day, the net change of emission is zero.
- b. Other pollutants – the project does not result in operational emissions that could lead to violations of any applicable state Ambient Air Quality Standards.
- c. Toxic Air Contaminants – The project complies with T-BACT.
- d. Cumulative TACs – The project is located at a facility identified in the AB2588 program. No additional risk is expected from this project. Therefore, it is anticipated that the modification will not create an adverse environmental impact.

As the project does not exceed any of the criteria above, the project does not require further CEQA review.

Sections 405-408 - CARB, EPA and Public Notification:

The emissions increase for each pollutant does not exceed the levels specified in Rule 202, Section 112. Therefore, public noticing specified by Sections 405, 406, 407, and 409.2 are not required.

3. PSD COMPLIANCE: Not applicable

4. PROHIBITORY RULES COMPLIANCE

Rule 401 - Ringelmann Chart

The graphite fiber manufacturing process and boiler are expected to comply with the Ringelmann No. 1 or 20% opacity requirement of this rule if the equipment is operated and maintained properly.

Rule 404 – Particulate Matter

Total particulate matter emissions from the graphite fiber manufacturing process are expected to comply with the 0.1 gr/dscf concentration limitation of this rule.

Given: Maximum Emission Rate, PM10 = 5.2 lb/hr (Permit limit)
 Combined Air Flow Rate from the Main Stack = 31,000 DSCFM (estimated)
 Operating Schedule = 24 hrs/day = 365 days/year

$$\text{Grain Loading} = \frac{[5.2 \text{ lb/hr}][7,000 \text{ gr/lb}][1 \text{ hr/60 min}]}{[31,000 \text{ cf/min}]}$$

$$= 0.020 \text{ gr/dscf} < 0.1 \text{ gr/dscf}$$

Rule 406 – Specific Contaminants

The graphite fiber manufacturing process and boiler are expected to comply with the emissions limit of 0.2% by volume sulfur compound as SO₂ and 0.1 gr/dscf of other combustion gases calculated to 12% CO₂.

Rule 411 – Boiler NO_x

The boiler is subject to this rule. A source testing condition will be required to demonstrate compliance with the 9 ppmvd at 3% O₂ NO_x and 400 ppmvd at 3% O₂ CO standards of this rule.

Rule 420 - Sulfur Content of Fuels

The boiler and afterburners will be fueled by pipeline-quality natural gas, which complies with the 50 grains H₂S/100 ft³ fuel limit of this rule.

5. NSPS COMPLIANCE: Not applicable.

6. NESHAP COMPLIANCE: Not applicable

RECOMMENDATION:

This equipment should comply with all applicable District rules and regulations. An Authority to Construct should be issued indicating the conditions outlined in this Authority to Construct Evaluation.

PREPARED BY: Carla J Prasetyo Jo **DATE:** _____

REVIEWED BY: _____ **DATE:** _____

**AIR QUALITY
MANAGEMENT DISTRICT****AUTHORITY TO CONSTRUCT EVALUATION**

APPLICATION NO.:	21607 & 21608
DATE:	December 18, 2008
EVALUATED BY:	Carla J. Prasetyo Jo

FACILITY NAME: Grafil Inc.**LOCATION OF EQUIPMENT:** 5900 88th Street, Sacramento, CA 95828**PROPOSAL:** Obtain an Authority to Construct to modify their graphite fiber manufacturing process Line 31 (P/O 21252) and Line 32 (P/O 21253).**INTRODUCTION:**

Grafil Inc. is applying for a modification of their existing graphite fiber manufacturing process Line 31 (P/O 21252) and Line 32 (P/O 21253). Grafil Inc. is proposing to replace the hydrogen cyanide (HCN) continuous emissions monitoring system (CEMS) on the main stack and change the averaging period for the HCN emission to 1 hour. The proposed HCN CEMS is manufactured by Boreal Laser, Inc. It uses light absorption to determine the concentration of HCN in the exhaust stream. The system is based on a laser diode which tunes the light wavelength to the specific absorption frequency of HCN. The system will detect the difference in the intensity of light directed across the main stack as the way to measure the concentration of HCN in the stack exhaust. There is no increase of emission resulting from this modification.

EQUIPMENT DESCRIPTION:**A/C 21607 - Graphite Fiber Manufacturing Process Line 31 Consisting of:**

1. Four (4) Oxidation Ovens, Electrically-heated, 235 KW each, Vented to APC Afterburner #1 (P/O 11425)
2. Two (2) Oxidation Ovens^(A), Electrically-heated, 500 KW each, Vented to APC Afterburner #1 (P/O 11425)
3. Low Temperature Furnace, 252 KW^(B), Electrically-heated, Vented to APC Afterburner #2^(C) (P/O 15841)
4. High Temperature Furnace, 400 KW, Electrically-heated, Vented to APC Afterburner #2^(C) (P/O 15841)
5. High Temperature Furnace End-Cap Extraction Filter
6. Electrolyte Surface Treatment Bath, Vented to Atmosphere
7. Surface Treated Fiber Dryer
8. Size Bath
9. Sized Fiber Dryer
10. Sized Make-up Facility
11. Two (2) Low Temperature Furnace End-Cap hoods, Low Temperature Rodding Exhaust, Two (2) Rodding Point Hoods, Two (2) High Temperature End-Cap Hoods, Vented to Process Exhaust Fan
12. Process Exhaust Fan, One (1) Primary and One (1) Standby, Vented to APC Afterburner #1 (P/O 11425)
13. Continuous Emission Monitor, One (1) Primary and One (1) Standby, Boreal Laser, Inc., Continuous Hydrogen Cyanide (HCN) Monitor, Model Gas Finder, Serial Nos.: HCNFC 2001 and HCNFC 2003,

Located in Plant Exhaust Stack for Afterburner Exhaust and Plant Air Ducting (One HCN Monitor Serving Both Line 31 [A/C 21607] and Line 32 [A/C 21608])

- (A) Oxidation Ovens (2)
C. A. Litzler Company
Electrically-Heated
500 KW each
Maximum Temperature - 572°F
- (B) Low Temperature Furnace
Resistance Heater Rating – 252 KW
- (C) APC Afterburner #2 (P/O 15841)
Zeeco, Inc.
Three-Stage Oxidation Process
Heat Input Rating – 2.4 MMBtu/hr

A/C 21608 - Graphite Fiber Manufacturing Process Line 32 Consisting of:

1. Four (4) Oxidation Ovens, Electrically-heated, 235 KW each, Vented to APC Afterburner #3 (P/O 11426)
 2. Two (2) Oxidation Ovens ^(A), Electrically-heated, 400 KW each, Vented to APC Afterburner #3 (P/O 11426)
 3. Low Temperature Furnace ^(B), 252 KW, Electrically-heated, Vented to APC Afterburner ^(C) #4 (P/O 18279)
 4. High Temperature Furnace, 400 KW, Electrically-heated, Vented to APC Afterburner ^(C) #4 (P/O 18279)
 5. High Temperature Furnace End-Cap Extraction Filter
 6. Electrolyte Surface Treatment Bath, Vented to Atmosphere
 7. Surface Treated Fiber Dryer
 8. Size Bath
 9. Sized Fiber Dryer
 10. Sized Make-up Facility
 11. Two (2) Low Temperature Furnace End-Cap Hoods, Low Temperature Furnace Rodding Exhaust, Two (2) Rodding Point Hoods, Two (2) High Temperature End-Cap Hoods, Vented to Process Exhaust Fan
 12. Process Exhaust Fan, One (1) Primary and One (1) Standby, Vented to APC Afterburner #3 (P/O 11426)
 13. Continuous Emission Monitor, One (1) Primary and One (1) Standby, Boreal Laser, Inc., Continuous Hydrogen Cyanide (HCN) Monitor, Model Gas Finder, Serial Nos.: HCNFC 2001 and HCNFC 2003, Located in Plant Exhaust Stack for Afterburner Exhaust and Plant Air Ducting (One HCN Monitor Serving Both Line 31 [A/C 21607] and Line 32 [A/C 21608])
 14. Waste Heat Recovery Boiler, 2.4^(D) MMBtu/hr, Vented to APC Baghouse (P/O 19659)
- (A) Oxidation Ovens (2)
Despatch Industries
Electrically-Heated
400 KW each
Maximum Zone Temperature - 572°F
 - (B) Low Temperature Furnace
Resistance Heater Rating – 252 KW
 - (C) APC Incinerator #4 (P/O 18279)
Zeeco, Inc.
Three-Stage Oxidation Process
Heat Input Rating – 2.4 MMBtu/hr
 - (D) Waste Heat Recovery Boiler
Estimated Rating – 2.4 MMBtu/hr based on APC Incinerator #4's rating

FLOW DIAGRAM: see permit folder.**CONTROL EQUIPMENT EVALUATION:**

The manufacturing process line 31 includes two APC afterburners. The exhaust from the oxidation ovens and fugitive emissions generated during process upset events, including start up, is vented to incinerator #1 (identified in the schematic diagram as the outside thermal oxidizer, O/TO). The exhausts from the low temperature furnace and the high temperature furnace is vented to incinerator #2 (identified as inside thermal oxidizer, I/TO), followed by a baghouse.

The manufacturing process line 32 includes two APC incinerators. The exhaust from the oxidation ovens and fugitive emissions generated during process upset events, including start up, is vented to incinerator #3 (identified in the schematic diagram as the outside thermal oxidizer, O/TO). The exhausts from the low temperature furnace and the high temperature furnace is vented to incinerator #4 (identified as inside thermal oxidizer, I/TO), followed by a baghouse. Source tests, as a permit requirement, have been conducted and demonstrated compliance with the emissions limitation.

OPERATING SCHEDULE:

The graphite fiber manufacturing process is permitted to operate 24 hours/day and 92 days/quarter. The boiler permitted to operate up to 24 hours/day and using up to 4,211,000 cubic feet/quarter.

EMISSIONS CALCULATIONS:**1. HISTORIC POTENTIAL TO EMIT:**

Pollutant	Process Lines 31 & 32 Combined Historic Potential to Emit			
	lb/hour (Based on 3-hour Average)			lb/day
	Main Stack	Fugitive Exhaust	Total	
ROC	3.32	0.02	3.34	80.2
NO _x	5.74	N/A	5.74	137.8
SO _x combustion	0.014 ^(A)	N/A	5.994	143.9
SO _x process	5.98 ^(B)	N/A		
PM ₁₀	5.2	N/A	5.2	124.8
CO	21.0	N/A	21.0	504.0

(A) SO_x combustion is SO_x emissions generated from the combustion product of the four afterburners. It is based on a combined heat input rate of 23.16 MMBtu/hr and natural gas SO_x emission factor of 0.0006 lb/MMBtu, Table 1.4-1 of AP-42 (7/98).

(B) SO_x process is SO_x emissions generated from the manufacturing process, which is based on 20 ppmv and 31,000 scfm.

Pollutant	Process Lines 31 & 32 Combined Historic Potential to Emit lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ROC	7,214	7,295	7,375	7,375
NO _x	12,398	12,536	12,674	12,674
SO _x	12,947	13,091	13,235	13,235
PM ₁₀	11,232	11,357	11,482	11,482
CO	45,360	45,864	46,368	46,368

Note: Number of days in quarter = 90, 91, 92 & 92

2. PROPOSED POTENTIAL TO EMIT:

Pollutant	Process Lines 31 & 32 Combined Proposed Potential to Emit			
	lb/hour (Based on 3-hour Average)			lb/day
	Main Stack	Fugitive Exhaust	Total	
ROC	3.32	0.02	3.34	80.2
NO _x	5.74	N/A	5.74	137.8
SO _{x combustion}	0.014 ^(A)	N/A	5.994	143.9
SO _{x process}	5.98 ^(B)	N/A		
PM ₁₀	5.2	N/A	5.2	124.8
CO	21.0	N/A	21.0	504.0

(A) SO_{x combustion} is SO_x emissions generated from the combustion product of the four afterburners. It is based on a combined heat input rate of 23.16 MMBtu/hr and natural gas SO_x emission factor of 0.0006 lb/MMBtu, Table 1.4-1 of AP-42.

(B) SO_{x process} is SO_x emissions generated from the manufacturing process, which is based on the 20 ppmv and 31,000 scfm.

Pollutant	Process Lines 31 & 32 Combined Proposed Potential to Emit lb/quarter			
	1 st Quarter	2 nd Quarter	3 rd Quarter	4 th Quarter
ROC	7,214	7,295	7,375	7,375
NO _x	12,398	12,536	12,674	12,674
SO _x	12,947	13,091	13,235	13,235
PM ₁₀	11,232	11,357	11,482	11,482
CO	45,360	45,864	46,368	46,368

Note: Number of days in quarter = 90, 91, 92 & 92

3. CALCULATION OF BACT TRIGGER:

NEI (BACT) = Net Emissions Increase

= Proposed Potential to Emit - Historic Potential to Emit

MPE = Maximum Potential Emissions on a 24-Hour Day Operation

A/C 21607 & 21608

Pollutant	NEI (BACT) lb/qtr	Is NEI (BACT) > 0?	MPE lb/day	BACT Trigger lb/day	Is BACT Required?
ROC	0	No	80.2	≥10	No
NO _x	0	No	137.8	≥10	No
SO _x	0	No	143.9	≥10	No
PM ₁₀	0	No	124.8	≥10	No
CO	0	No	504.0	≥550	No

4. CALCULATION OF OFFSET TRIGGER FOR ROC AND NO_x:

Permit No.	Emissions Unit	Stationary Source (A) Cumulative Emissions Increase (lb/quarter)	
		ROC	NO _x
P/O 11425	APC Incinerator #1 [Line 31]	N/A	N/A
P/O 11426	APC Incinerator #3 [Line 32]	N/A	N/A
P/O 13570	APC Baghouse [Line 32]	N/A	N/A
P/O 15839	IC Engine Standby	12	823
P/O 15840	APC Baghouse [Line 31]	N/A	N/A
P/O 15841	APC Incinerator #2 [Line 31]	N/A	N/A
P/O 18279	APC Incinerator #4 [Line 32]	N/A	N/A
P/O 21252	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 21607 and 21608	
P/O 21253	Graphite Fiber Manufacturing Process Line 32		
P/O 21254	Boiler	23	46
A/C 21244	IC Engine Standby	62	302
A/C 21607	Graphite Fiber Manufacturing Process Line 31	7,375	12,674
A/C 21608	Graphite Fiber Manufacturing Process Line 32		
Total		7,472	13,845
Offset Trigger Level		≥5,000	≥5,000

(A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine, which is based on 200 hrs/quarter.

5. CALCULATION OF OFFSET TRIGGER FOR SO_x, PM₁₀ AND CO:

Permit No.	Emissions Unit	Stationary Source Cumulative Emission Increase Since 01-01-77 (A) lb/quarter		
		SO _x	PM ₁₀	CO
P/O 11425	APC Incinerator #1 [Line 31]	N/A	N/A	N/A
P/O 11426	APC Incinerator #3 [Line 32]	N/A	N/A	N/A
P/O 13570	APC Baghouse [Line 32]	N/A	N/A	N/A
P/O 15839	IC Engine Standby	0	13	711
P/O 15840	APC Baghouse [Line 31]	N/A	N/A	N/A
P/O 15841	APC Incinerator #2 [Line 31]	N/A	N/A	N/A
P/O 18279	APC Incinerator #4 [Line 32]	N/A	N/A	N/A
P/O 21252	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 21607 and 21608		
P/O 21253	Graphite Fiber Manufacturing Process Line 32			
P/O 21254	Boiler	3	32	1242
A/C 21244	IC Engine Standby	10	9	228
A/C 21607	Graphite Fiber Manufacturing Process Line 31	13,235	11,482	46,368
A/C 21608	Graphite Fiber Manufacturing Process Line 32			
Total		13,248	11,536	48,549
Offset Trigger Level		≥13,650	≥7,500	≥49,500

(A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine, which is based on 200 hrs/quarter.

6. CALCULATION OF EMISSION OFFSETS FOR ROC AND NO_x:

There is no net emission increase for both ROC and NO_x. Therefore, emission offsets are not required for ROC and NO_x.

7. CALCULATION OF EMISSION OFFSETS FOR SO_x, PM₁₀ AND CO:

There is no net emission increase for SO_x, PM₁₀ and CO. Therefore, no additional emission offsets are required for SO_x, PM₁₀ and CO.

COMPLIANCE WITH RULES AND REGULATIONS:

1. AB 3205 COMPLIANCE:

There is no K-12 school within 1,000 feet of this graphite fiber manufacturing process. Therefore, H&S Code §42301.6 does not apply.

2. NSR COMPLIANCE:

Rule 202 - New Source Review

Section 301 - BACT

There is no net emission increase from this modification. Therefore, additional BACT requirement will not be required for the modification of the boiler, graphite fiber manufacturing process line 31 and 32.

Section 302 - Offsets

The proposed emissions of ROC, NO_x and PM₁₀, exceed the offset thresholds. As there is no net ROC, NO_x or PM₁₀ emissions increase from this modification, additional emission offsets for ROC, NO_x or PM₁₀ will not be required.

Section 307 - Denial, Failure to Meet CEQA

The SMAQMD utilizes *Guide to Air Quality Assessment in Sacramento County, SMAQMD, July 2004* as guide during the initial study phase of a proposed project to determine the level of review necessary under CEQA (referenced in the IC Engine Policy manual last updated December of 2005).

- a. ROG and NO_x – This project assume the same emission level. Therefore, although the ROC and NO_x emissions are greater than 65 lbs/day, the net change of emission is zero.
- b. Other pollutants – the project does not result in operational emissions that could lead to violations of any applicable state Ambient Air Quality Standards.
- c. Toxic Air Contaminants – The project complies with T-BACT.
- d. Cumulative TACs – The project is located at a facility identified in the AB2588 program. No additional risk is expected from this project. Therefore, it is anticipated that the modification will not create an adverse environmental impact.

As the project does not exceed any of the criteria above, the project does not require further CEQA review.

Sections 405-408 - CARB, EPA and Public Notification:

The emissions increase for each pollutant does not exceed the levels specified in Rule 202, Section 112. Therefore, public noticing specified by Sections 405, 406, 407, and 409.2 are not required.

3. PSD COMPLIANCE: Not applicable

4. PROHIBITORY RULES COMPLIANCE

Rule 401 - Ringelmann Chart

The graphite fiber manufacturing process and boiler are expected to comply with the Ringelmann No. 1 or 20% opacity requirement of this rule if the equipment is operated and maintained properly.

Rule 404 – Particulate Matter

Total particulate matter emissions from the graphite fiber manufacturing process are expected to comply with the 0.1 gr/dscf concentration limitation of this rule.

$$\begin{aligned} \text{Given:} \quad & \text{Maximum Emission Rate, PM}_{10} = 5.2 \text{ lb/hr (Permit limit)} \\ & \text{Combined Air Flow Rate from the Main Stack} = 31,000 \text{ DSCFM (estimated)} \\ & \text{Operating Schedule} = 24 \text{ hrs/day} = 365 \text{ days/year} \\ & \quad [5.2 \text{ lb/hr}][7,000 \text{ gr/lb}][1 \text{ hr/60 min}] \\ \text{Grain Loading} \quad & = \frac{\quad}{[31,000 \text{ cf/min}]} \\ & = 0.020 \text{ gr/dscf} < 0.1 \text{ gr/dscf} \end{aligned}$$

Rule 406 – Specific Contaminants

The graphite fiber manufacturing process and boiler are expected to comply with the emissions limit of 0.2% by volume sulfur compound as SO₂ and 0.1 gr/dscf of other combustion gases calculated to 12% CO₂.

Rule 420 – Sulfur Content of Fuels

The boiler and afterburners will be fueled by pipeline-quality natural gas, which complies with the 50 grains H₂S/100 ft³ fuel limit of this rule.

5. NSPS COMPLIANCE: Not applicable.

6. NESHAP COMPLIANCE: Not applicable

RECOMMENDATION:

This equipment should comply with all applicable District rules and regulations. An Authority to Construct should be issued indicating the conditions outlined in this Authority to Construct Evaluation.

PREPARED BY: Carla J Prasetyo Jo **DATE:** December 18, 2008

REVIEWED BY: _____ **DATE:** _____

**AIR QUALITY
MANAGEMENT DISTRICT****AUTHORITY TO CONSTRUCT EVALUATION ADDENDUM**

APPLICATION NO.:	<u>21750</u>
DATE:	<u>April 10, 2009</u>
EVALUATED BY:	<u>Brian Krebs</u>

FACILITY NAME: Grafil Inc.**LOCATION OF EQUIPMENT:** 5900 88th Street, Sacramento, CA 95828**PROPOSAL:** Obtain an Authority to Construct for a diesel fired emergency fire pump.**INTRODUCTION:**

Grafil Inc. was issued an Authority to Construct for a John Deere driven fire pump. Their equipment supplier is now proposing to use the same engine but operating at a lower RPM (1760 rpm) from that which was originally proposed in the permit application (2100 rpm). The EPA family name, EPA certificate and CARB Executive Order number remain the same between the engine originally proposed and the engine operating at the lower RPM. Other than the RPM difference, this change does not alter any other parameters of this evaluation. Therefore, refer to the original evaluation dated February 7, 2009 for the complete evaluation.

EQUIPMENT DESCRIPTION:A/C 21750 – Standby IC engine

Make: John Deere
Model No.: JU6H-UFADNO/6068HFC28D
Serial No.: To Be Determined
Engine BHP: 197@ **1760** RPM
Fuel Type: Diesel
Displacement: 414 cu. in.
Turbo Charged, 4-cycle
Driving an emergency fire pump

RECOMMENDATION:

This equipment should comply with all applicable District rules and regulations. An Authority to Construct should be reissued indicating the conditions outlined in this Authority to Construct Evaluation.

PREPARED BY:	<u>Brian F. Krebs</u>	DATE:	<u>April 10, 2009</u>
REVIEWED BY:	<u></u>	DATE:	<u></u>

**AIR QUALITY
MANAGEMENT DISTRICT****AUTHORITY TO CONSTRUCT EVALUATION**

APPLICATION NO.:	21750
DATE:	February 7, 2009
EVALUATED BY:	Brian Krebs

FACILITY NAME: Grafil Inc.**LOCATION OF EQUIPMENT:** 5900 88th Street, Sacramento, CA 95828**PROPOSAL:** Obtain an Authority to Construct for a diesel fired emergency fire pump.**INTRODUCTION:**

Grafil Inc. is applying for an Authority to Construct/Permit to Operate an IC engine that drives a direct drive fire pump and will be used for fire suppression. This application will replace a previous diesel fire pump engine permitted under A/C 21244. The IC engine will be operated a maximum of 50 hours per year for maintenance purposes and a maximum of 200 hours per year for maintenance and emergency electrical power combined.

FLOW DIAGRAM: Not applicable.**EQUIPMENT DESCRIPTION:**A/C 21244 – Standby IC engine

Make: John Deere
Model No.: JU6H-UFADNO/6068HFC28D
Serial No.: To Be Determined
Engine BHP: 197@2100 RPM
Fuel Type: Diesel
Displacement: 414 cu. in.
Turbo Charged, 4-cycle
Driving an emergency fire pump

CONTROL EQUIPMENT EVALUATION:

The engine has been certified to meet the Tier III non-road emissions standards in effect at the date of manufacture. The engine is expected to meet the BACT standards for all criteria pollutants: NO_x + ROC-3.0 g/hp-hr, CO-2.6 g/hp-hr, SO_x-low sulfur fuel oil (<0.0015% sulfur by weight) and PM₁₀-0.15 g/hp-hr.

PROCESS RATE:

Maximum allowed operating hours for maintenance purposes will be limited to 50 hours/year. This reduction of hours would comply with section 93115 title 17 of the California Code of Regulations, **Airborne Toxic Control Measures for Stationary Compression Ignition Engines**. Total operation, maintenance and emergency, will be limited to 200 hours per year.

EMISSIONS CALCULATIONS:

1. HISTORIC POTENTIAL TO EMIT: This is a newly permitted unit, no historical Potential to Emit.

2. PROPOSED POTENTIAL TO EMIT:

Pollutant	Emission Factor(A) g/hp-hr	Proposed Emissions(B)	
		Lb/quarter	Lb/year
ROC	1.0	87	87
NOx	3.0	261	261
SOx	0.0048	0	0
PM10	0.15	13	13
CO	2.6	226	226
ROC+NOx	3.0	261	261

(A) The combined emission factor for NOx+ROC and the individual emission factor for CO are based on the District's BACT determination which incorporates the EPA Tier III standards for this source category. The individual emission factors for ROC and NOx were derived from the Tier III NOx+ROC standard. The emission factor for SOx is based on 15 ppm sulfur by weight in the fuel.

(B) Emissions based on 197 hp, 200 hours/quarter and 200 hours/year of operation.

3. CALCULATION OF BACT TRIGGER:

NEI (BACT) = Net Emissions Increase
= Proposed Potential to Emit - Historic Potential to Emit

MPE = Maximum Potential Emissions on a 24-Hour Day Operation

Pollutant	NEI (BACT) lb/qtr	Is NEI (BACT) >0?	MPE lb/day	BACT Trigger lb/day	Is BACT Required?
ROC	87	Yes	10	≥10	Yes
NOx	261	Yes	31	≥10	Yes
SOx	0	Yes	0	≥10	No
PM10	13	Yes	2	≥10	No
CO	226	Yes	27	≥550	No

4. CALCULATION OF OFFSET TRIGGER FOR ROC, NOx, SOx, PM10 AND CO:

Permit No.	Emissions Unit	Stationary Source (A) Cumulative Emissions Increase (lb/quarter)	
		ROC	NOx
P/O 11425	APC Incinerator #1 [Line 31]	N/A	N/A
P/O 11426	APC Incinerator #3 [Line 32]	N/A	N/A
P/O 13570	APC Baghouse [Line 32]	N/A	N/A

P/O 15839	IC Engine Standby	12	823
P/O 15840	APC Baghouse [Line 31]	N/A	N/A
P/O 15841	APC Incinerator #2 [Line 31]	N/A	N/A
P/O 18279	APC Incinerator #4 [Line 32]	N/A	N/A
P/O 21252	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 21607 and 21608	
P/O 21253	Graphite Fiber Manufacturing Process Line 32		
P/O 21254	Boiler	23	46
A/C 21244	IC Engine Standby	Replaced by A/C 21750	Replaced by A/C 21750
A/C 21607	Graphite Fiber Manufacturing Process Line 31	7,375	12,674
A/C 21608	Graphite Fiber Manufacturing Process Line 32		
A/C 21750	IC Engine Standby, Firepump	87	261
Total		7,497	13,804
Offset Trigger Level		≥5,000	≥5,000

(A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine, which is based on 200 hrs/quarter.

5. CALCULATION OF OFFSET TRIGGER FOR SO_x, PM₁₀ AND CO:

Permit No.	Emissions Unit	Stationary Source Cumulative Emission Increase Since 01-01-77 (A) lb/quarter		
		SO _x	PM ₁₀	CO
P/O 11425	APC Incinerator #1 [Line 31]	N/A	N/A	N/A
P/O 11426	APC Incinerator #3 [Line 32]	N/A	N/A	N/A
P/O 13570	APC Baghouse [Line 32]	N/A	N/A	N/A
P/O 15839	IC Engine Standby	0	13	711
P/O 15840	APC Baghouse [Line 31]	N/A	N/A	N/A
P/O 15841	APC Incinerator #2 [Line 31]	N/A	N/A	N/A
P/O 18279	APC Incinerator #4 [Line 32]	N/A	N/A	N/A
P/O 21252	Graphite Fiber Manufacturing Process Line 31	See Modification in A/C 21607 and 21608		
P/O 21253	Graphite Fiber Manufacturing Process Line 32			
P/O 21254	Boiler	3	32	1242

A/C 21244	IC Engine Standby	Replaced by A/C 21750	Replaced by A/C 21750	Replaced by A/C 21750
A/C 21607	Graphite Fiber Manufacturing Process Line 31	13,235	11,482	46,368
A/C 21608	Graphite Fiber Manufacturing Process Line 32			
A/C 21750	IC Engine Standby, Firepump	0	13	226
Total		13,238	11,540	48,547
Offset Trigger Level		≥13,650	≥7,500	≥49,500

(A) Potentials to emit are based on maximum quarterly emissions during the 3rd and 4th quarters, except for the standby IC engine, which is based on 200 hrs/quarter.

6. CALCULATION OF EMISSION OFFSETS FOR ROC AND NOx (Sections 415 and 416):

Though the emissions of ROC and NOx are in excess of the offset trigger level, emission offsets are not applicable for emergency IC engines (Rule 202, §110). In addition, though this source is a major source for NOx, the 1984 SIP approved Rule 202 would not require offsets because this engine is by itself not major nor when added to the other cumulative increases and decreases causes this to be a major modification.

7. CALCULATION OF EMISSION OFFSETS FOR SOx, PM10, and CO (Sections 415 and 417):

Though the emissions of PM10 are in excess of the offset trigger level, emission offsets are not applicable for emergency IC engines (Rule 202, §110). Emissions of SOx and CO are less than the offset trigger level.

COMPLIANCE WITH RULES AND REGULATIONS:

1. AB 3205 COMPLIANCE:

There is no K-12 school within 1,000 feet of this engine. Therefore, H&S Code §42301.6 does not apply.

2. NSR COMPLIANCE:

Rule 202 - New Source Review

Section 301 - BACT

The proposed NOx emissions from the IC engine exceed the BACT trigger level specified in this section. Therefore, the IC engine is subject to BACT requirement. The District has determined that BACT for IC engines in this source category is a combined NOx and ROC emission rate not exceeding 3.0 g/hp-hr.

Section 302 - Offsets

Emergency electrical generating, flood control, and fire fighting equipment is exempt from the requirement to provide emission offsets by Section 110 provided the following conditions are met:

1. Operation for maintenance purposes is limited to 100 hours per year (engine will be limited to 50 hours per year for T-BACT compliance), and such maintenance shall be scheduled in cooperation with the District so as to limit air quality impact, and

2. Operation of the equipment shall be limited to a total of 200 hours per year, and
3. Operation of the equipment shall not be for supplying power to a serving utility for distribution on the grid, and
4. Operation for other than maintenance purposes shall be limited to actual interruptions of electrical power by the serving utility or emergency water pumping for flood control or fire fighting, or
5. Operation for other than maintenance purposes shall be limited to maintaining the safety and preserving the integrity of nuclear power generating systems.

Conditions will be placed on the Permit to Operate indicating these or more restrictive limitations.

Section 307 - Denial, Failure to Meet CEQA

The SMAQMD has developed a comprehensive permitting CEQA Guidance document. Project reviews conducted in accordance with the policy manuals contained therein have been determined to meet the CEQA criteria of ministerial and do not require additional CEQA review.

This project falls within the scope of the IC Engine permitting manual and has been determined to be ministerial. No further review is required.

Sections 405-408 - CARB, EPA and Public Notification:

The pollutant emissions from this project did not exceed the exemption level specified in Rule 202, Section 112. Therefore, this permit action is not subject to CARB, EPA and public review.

3. PSD COMPLIANCE: Not applicable

4. PROHIBITORY RULES COMPLIANCE

Rule 401 - Ringlemann Chart

Visible emissions are expected to comply with the 20% opacity requirement of this rule.

Rule 402 - Nuisance

The District regulates emissions of toxics substances through this rule. In accordance with CARB's Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines, October 2000, and the State of California ATCM, the District will require a PM emission rate of 0.15 g/hp-hr or less in order to minimize the cancer risk associated with diesel exhaust and limit maintenance to 50 hours per year. This engine is certified to this level.

Rule 406 - Specific Contaminants

This emissions unit is expected to comply with the emissions limit of 0.2% by volume sulfur compound as SO₂ and 0.1 gr/dscf of other combustion gases calculated to 12% CO₂.

The IC engine will meet the 0.1 grains PM/dscf limit of this rule as shown below:

Exhaust Gas Flow = 1192 acfm

Stack Temperature = 911 F = 1,371 R

Barometric Pressure = 29.6 in. Hg

PM10 Emission Factor = 0.15 g/hp-hr

Constant correcting to standard condition = 17.71

Exhaust Gas Flow = 1192 acfm * 17.71 * 29.6 in. Hg / 1,371 R = 456 dscfm

PM10 Concentration = 0.15 g/hp-hr * 15.43 grains/g * 197 hp / (456 dscfm * 60 min/hr)
= 0.017 grains/dscf

Rule 412 – Stationary IC Engines Located at Major Stationary Sources of NOx
Emergency standby engines are exempt from the emission standards of this rule. However, they will be required to comply with the recordkeeping requirements found in section 500.

Rule 420 - Sulfur Content of Fuels

The State of California regulates the sulfur content of diesel no. 2 motor fuel @ <0.05%S. The IC engine should comply with the 0.5% sulfur content requirement of this rule.

5. NSPS COMPLIANCE: SUBPART IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines.

This NSPS is applicable to any of the following:

- a. Manufacturers of engines with a displacement of less than 30 liters per cylinder where the model year is 2007 or later for non fire pump engines and the model year listed in Table 3 of this subpart for fire pump engines.
- b. Owners or operators of engines that commence construction after July 11, 2005 where the engine is manufactured after April 1, 2006 for a non fire pump engine or for engines manufactured as a certified National Fire Protection Association (NFPA) fire pump after July 1, 2006.
- c. Owners and operators of engines that modify or reconstruct their engine after July 11, 2005.

This engine will be manufactured in 2008 and has a displacement of less than 30 liters per cylinder, therefore, the engine is subject to subpart IIII.

The NSPS requires the following:

- a. The engine must meet the non-road standard that is applicable to the engine size and year of manufacture. The engine is certified to the Tier III standard.
- b. The fuel used must meet the requirements specified in 40 CFR 80.510(b). The engine is required to use CARB diesel which complies with the aforementioned fuel specification.
- c. The engine must have an hour meter installed. The engine is required to have an hour meter installed.
- d. Operation for maintenance purposes shall be limited to 100 hours per year. The engine will be limited to 50 hours per year for maintenance purposes.

- 6. ATCM COMPLIANCE:** The engine will comply with the ATCM for In Use Stationary Compression Ignition Engines by meeting the emission rate of 0.15 g/hp-hr and limiting hours of operation to a maximum of 50 hours per year for maintenance purposes and a total of 200 hours per year for maintenance purposes and operation during actual emergency fire fighting periods. In addition, CARB diesel fuel will be required.

- 7. NESHAP COMPLIANCE:** Subpart ZZZZ - National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at both major and area sources of HAP emissions.

The most recent amendments to Subpart ZZZZ which were adopted January 18, 2008 and went into affect March 18, 2008. This amendment is intended to address HAP emissions from new and reconstructed stationary RICE less than or equal to 500 HP located at major sources and all **new and reconstructed** stationary RICE located at area sources.

This engine is considered a new RICE since construction will commence after June 12, 2006 at an area source and as such is subject to this subpart.

The requirements of this NESHAP subpart is that the engine comply with the requirements specified in 40 CFR 60 Subpart IIII (Standards of Performance for Stationary Compression Ignition Internal Combustion Engines).

RECOMMENDATION:

This equipment should comply with all applicable District rules and regulations. An Authority to Construct should be issued indicating the conditions outlined in this Authority to Construct Evaluation.

PREPARED BY:	<u>Brian F. Krebs</u>	DATE:	<u>February 7, 2009</u>
REVIEWED BY:	<u></u>	DATE:	<u></u>